AMENDMENTS TO THE CLAIMS

1. (Previously presented) An ADIP demodulation apparatus, which is applied to an optical disk driver to generate ADIP information according to a wobble signal, the ADIP demodulation apparatus comprising:

a slicing unit for receiving the wobble signal and generating a wobble pulse by slicing the wobble signal;

a phase locked loop for generating a reference wobble signal with the same frequency and phase as the wobble pulse according to the wobble pulse;

a channel bit generator for producing a channel bit signal according to a difference signal generated by comparing the phase of the reference wobble signal with that of the wobble pulse; and

a decoder for decoding to the ADIP information according to the channel bit signal;

wherein the channel bit generator comprises:

a bit comparator for receiving the wobble pulse and the reference wobble signal and generating the difference signal;

a counter for counting the width of high level of the difference signal corresponding to each wobble pulse using a counting clock and outputting a count value; and

a decision unit for comparing the count value with a threshold value and then outputting the channel bit signal.

2. (Cancelled)

3. (Previously presented) The ADIP demodulation apparatus according to claim 1, further comprising a reference clock generator for generating the counting clock according to the wobble pulse.

4. (Previously presented) The ADIP demodulation apparatus according to claim 1, wherein the ADIP information is a sync signal when the channel bit signal sequence is a first sequence.

5. (Previously presented) The ADIP demodulation apparatus according to claim 4, wherein the ADIP information is data 0 when the channel bit signal sequence is a second sequence.

6. (Previously presented) The ADIP demodulation apparatus according to claim 5, wherein the ADIP information is data 1 when the channel bit signal sequence is a third sequence.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Previously presented) The ADIP demodulation apparatus according to claim 1, where the difference signal is generated by executing an XOR operation between the reference wobble signal and the wobble pulse.

14. (Previously presented) The ADIP demodulation apparatus according to claim 1, where the difference signal is generated by executing minus operation between the reference wobble signal and the wobble pulse.

15. (Previously presented) The ADIP demodulation apparatus according to claim 4, wherein the first sequence is 11110000.

16. (Previously presented) The ADIP demodulation apparatus according to claim 5, wherein the second sequence is 10000011.

17. (Previously presented) The ADIP demodulation apparatus according to claim 6, wherein the third sequence is 10001100.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (New) An ADIP demodulation method, which is applied to an optical disk driver to generate ADIP information according to a wobble signal, the ADIP demodulation method comprising the steps of:

receiving the wobble signal;

generating a wobble pulse by slicing the wobble signal;

generating a reference wobble signal with the same frequency and phase as the wobble pulse according to the wobble pulse;

generating a difference signal by comparing the wobble pulse with the reference wobble signal;

counting the width of high level of the difference signal corresponding to each wobble pulse using a counting clock and outputting a count value;

comparing the count value with a threshold value and then outputting a channel bit signal; and

decoding the channel bit signal to generate the ADIP information.

22. (New) The ADIP demodulation method according to claim 21, further comprising the step of generating the counting clock according to the wobble pulse.

23. (New) The ADIP demodulation method according to claim 21, wherein the ADIP information is a sync signal when the channel bit signal sequence is a first sequence.

24. (New) The ADIP demodulation method according to claim 23, wherein the first sequence is 11110000.

25. (New) The ADIP demodulation method according to claim 23, wherein the ADIP information is data 0 when the channel bit signal sequence is a second sequence.

26. (New) The ADIP demodulation method according to claim 25, wherein the second sequence is 10000011.

27. (New) The ADIP demodulation method according to claim 25, wherein the ADIP information is data 1 when the channel bit signal sequence is a third sequence.

28. (New) The ADIP demodulation method according to claim 27, wherein the third sequence is 10001100.